

Systems Software Specialist
Proposed Grade---GS-15

A. Position Identity

System Software Specialist (IHSA) DDA, Position 0000. The System Software Specialist reports to the IHSA (Information Handling Systems Architect) and is the lead specialist in systems software in the Office of the IHSA. He is familiar with both operating systems and database management systems, a recognized expert in one of them. He is responsible for specific concerns within the Office of the IHSA which involve systems software.

B. Major Duties

1. Responsible for strategic planning with respect to general service central processing systems. Concerns will include expandability, security, and robustness of various central processing architectural alternatives, which have the potential of meeting general service requirements.

2. Responsible for evaluating prototype planning, and strategic planning with respect to secure operating systems and hardware with security enhancing firmware. Will assess tradeoffs between security and performance, determining potential utility of various approaches and their appropriate applications. He will monitor progress of key efforts for the development of secure operating systems.

3. Responsible for evaluating message handling systems. Concerns include dissemination and distribution, flexibility and control, and security. Centralized versus distributed message handling facilities to meet the Agency's long-range needs will be evaluated.

4. Responsible for evaluating text processing systems. Concerns will include independent mechanizations on dedicated computing machinery versus software operation on a mainframe in a time-shared environment.

5. Responsible for elements of system design relating to systems software utilities and the techniques of their incorporation. Included are transaction recordation, backup and recovery, archival, compilation, and linkers and editors.

6. Responsible for strategic planning with respect to database management systems. Concerns include standards for query languages, ability to select a small family of next-generation database management systems that can meet all the Agency's long-range needs, and the definition of prototype applications to evaluate promising new languages.

7. Responsible for concerns relative to the harmonization of files or databases that interoperate and for configuration management standards and planning with respect to files and databases.

8. Responsible for Concerns relative to community access to files. will investigate and analyze facilities for multiple

security level access to files and evaluate effectiveness of proposed approaches for multilevel access.

9. Responsible for design aspects relative to operating system and database management system architectures and architectural requirements in distributed processing systems. Will contribute the operating system and database management system functional design requirements to any Agency prototype distributed processing systems.

C. Evaluation Factors

1. Knowledge and Abilities

He should have expert knowledge of systems software, with specific expertise in either operating system or database management systems. A general knowledge of system utilities and proprietary software packages which operate in the systems environment is also required. Included are such functionalities as transaction handlers, compiler link editors, instrumentations packages, and diagnostic software.

He must have demonstrated knowledge of the information handling systems development process and of the particular aspects and roles of systems software in that process. This knowledge should have been gained through exercising a significant management function, and he must be able to apply that knowledge to strategic planning and system design evaluations. In all his analyses and planning, he must be practical in terms of evaluating the potentialities of emerging technology and of the status, or the level of development, of new functionalities. He must also be able to assess the interface characteristics of one systems software functionality with other functionalities.

He must have a demonstrated ability to work well with senior managers. In this context, he must be able to explain simply and lucidly what are the implications of various alternatives. He must be persuasive in presenting the solutions he believes are in the best interest of the Agency, although sometimes they may not be in concurrence with those of users or developers. In all cases, he must be able to accept adverse judgments gracefully.

2. Difficulty of Work

Able to deal with and report through Agency's top management decision processes relative to information handling issues. The systems software subject matter is one of the most complex and technically sophisticated area of information handling systems development. It requires a general knowledge of the characteristics of all the adjunct elements which interact with systems software, such as host computers, mass storage devices, terminals, front end processors, and output devices.

~~Administrative - Internal Use Only~~

In dealing with systems software, the Systems Software Specialist must be able to structure unstructured problems and direct efforts into high priority areas. In doing this, he must define the key issues and prioritize objectives. He must be able to develop the top-level problem description or system definition and then effectively structure the preferred allocation of resources to deal with it.

Able to effectively structure, charge, and guide analytic efforts. In the process, he will formulate the statement of work and structure an effective effort within prescribed limitations of time and scope. In most instances, this will require a high level of management as well as technical expertise; the time and scope will generally be sharply constrained to meet the exigencies of decision data, top-level inquiries, and program planning submittals. There must be knowledgeable and effective review of the work in progress and results. The results summarization must be clear and concise, focusing top-management's attention on the central issues or results.

3. Responsibility

The analyses, technical discussions, strategic planning and representations of the Systems Software Specialist will have a direct impact on the effectiveness of the annual application of over [] of the Agency's resources. The results of his work are subject to the guidance, review, and approval of the IHSA. As forwarded, they will be subject to review and approval at both the directorate and DCI levels.

STAT

4. Personal Relationships

The position of Systems Software Specialist requires broad contact with experts and senior managers throughout the Agency and Community. The contacts will involve discussions of requirements, discussions of alternative approaches, and long-range implications of alternatives, and coordination of activities. Matters of discussion will frequently be controversial. The incumbent's role with external contacts will require tact and persuasiveness.

Internally, the Systems Software Specialist will be responsible for systems software matters. He will be responsible for this aspect of strategic planning and harmoniously integrate systems software concerns into the total planning effort. He must have the self-confidence to seek and incorporate into his analyses and planning the best technical advice and analyses available.

5. Supervision and Guidance Received

The Systems Software Specialist receives his assignments and initiating guidance from the IHSA, including resources and priorities. In general, his assignments will be oral, and he will have occasional discussions with the IHSA or

Administrative - Internal Use

the Deputy to discuss progress and problems. He will act independently in executing his assignments.

His performance will be evaluated upon: the acceptance of plans and recommendations by senior Agency management, the degree to which the incumbent maintains good personal relationships with the Agency's technical leaders involved in his area, the effectiveness with which he functions at a systems level, and the management expertise displayed in developing strategic plans and policy.